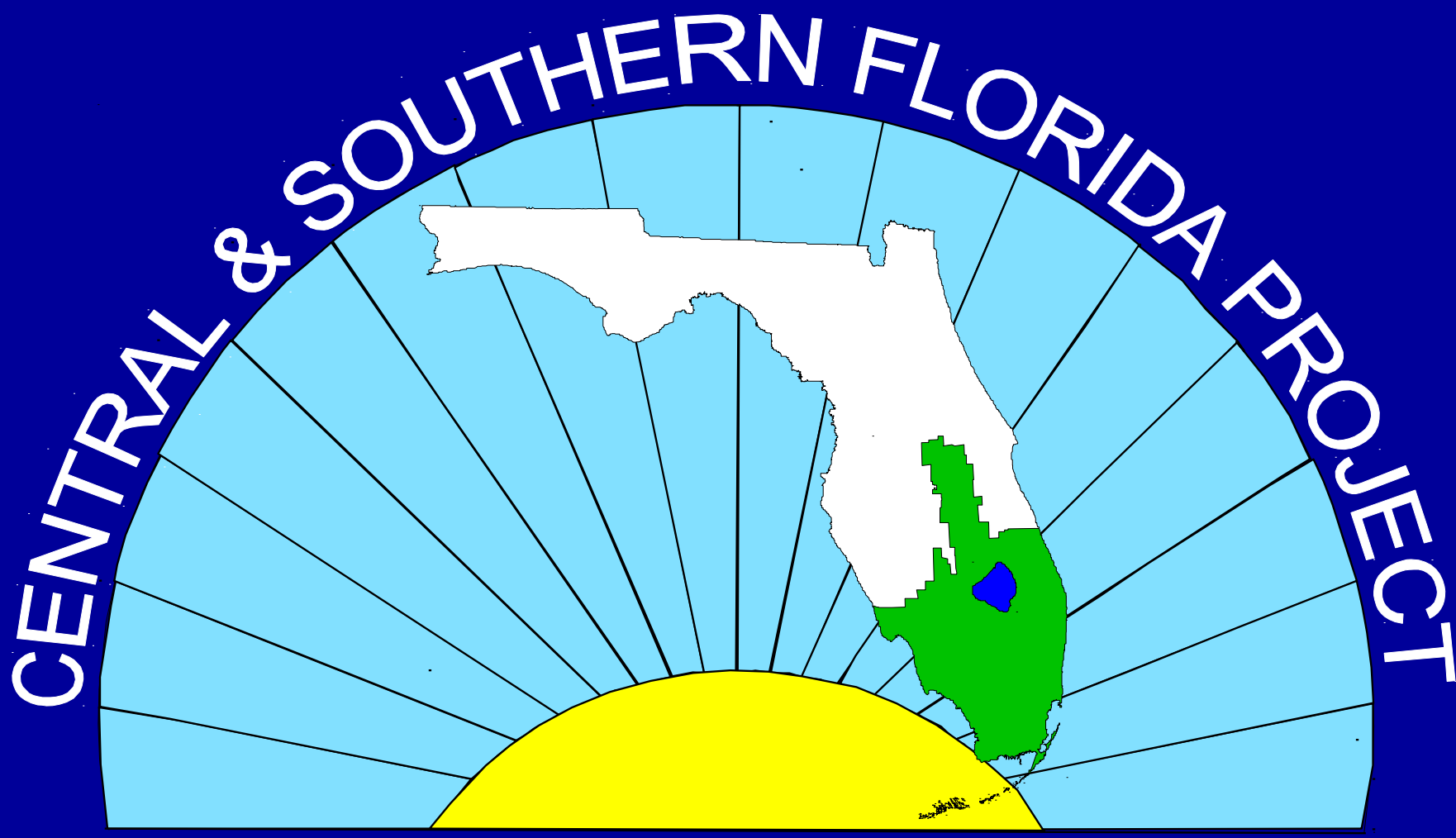
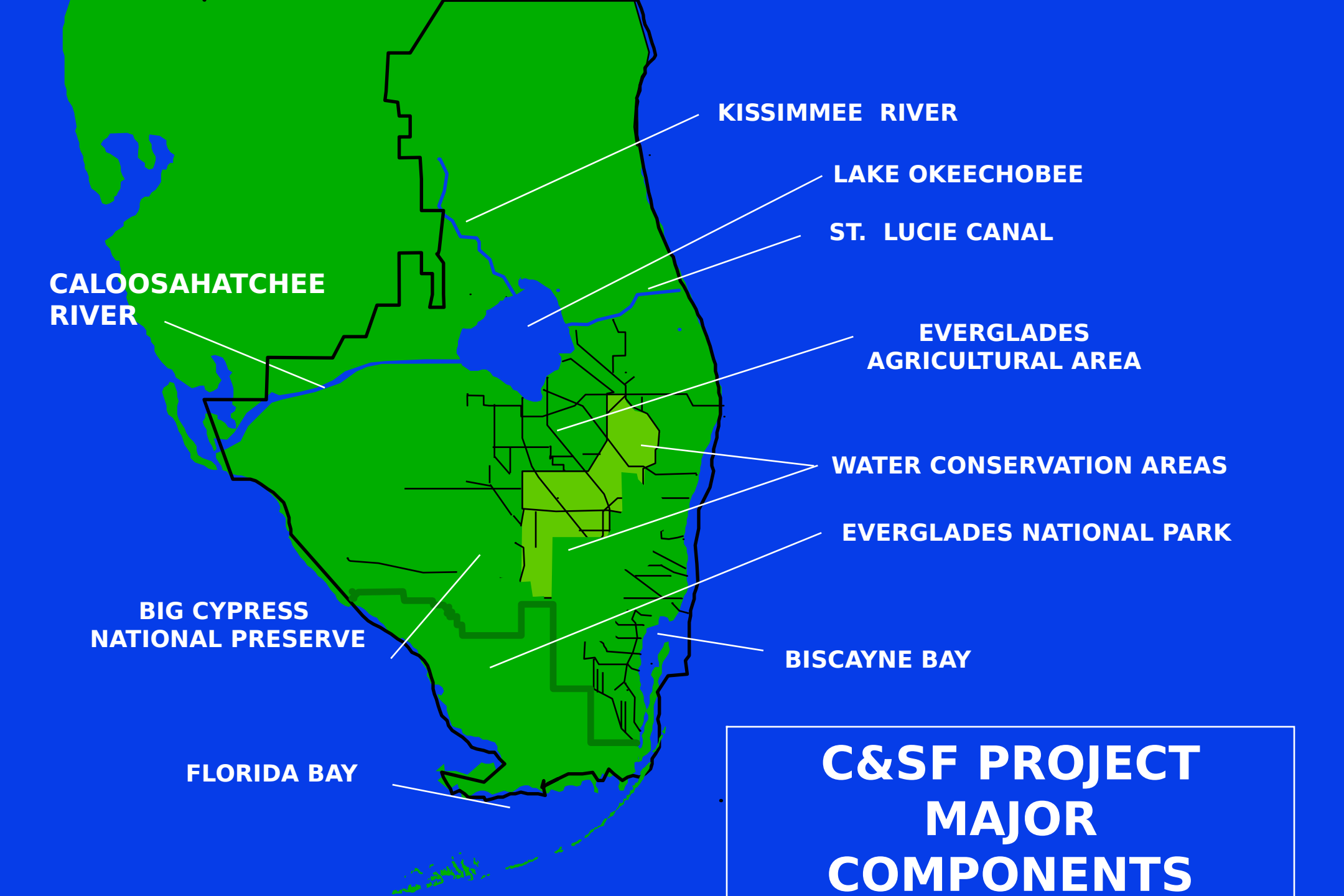


COMPREHENSIVE REVIEW STUDY

CENTRAL & SOUTHERN FLORIDA PROJECT

- First authorized by Congress in 1948
- Major Purposes:
  - Flood Control
  - Water Supply
  - Water Control
  - Water Deliveries to Everglades National Park


KISSIMMEE RIVER
LAKE OKEECHOBEE
ST. LUCIE CANAL
CALOOSAHATCHEE RIVER
EVERGLADES AGRICULTURAL AREA
WATER CONSERVATION AREAS
EVERGLADES NATIONAL PARK
BIG CYPRESS NATIONAL PRESERVE
BISCAYNE BAY
FLORIDA BAY
C&SF PROJECT MAJOR COMPONENTS

WHAT IS THE PURPOSE OF THE COMPREHENSIVE PLAN?

The primary and overarching purpose of the Plan is to restore the south Florida ecosystem.

“ When the rains came this winter, the Everglades flooded.

Now, when we need rain, that extra water is gone.”

- Palm Beach Post
June 25, 1998

COMPREHENSIVE REVIEW STUDY (THE RESTUDY)

- Study first authorized by Congress in 1992
- Reexamination of C&SF Project to:
  - Restore south Florida ecosystem
  - Enhance water supplies
  - Maintain flood control

WATER RESOURCES DEVELOPMENT ACT OF 1996

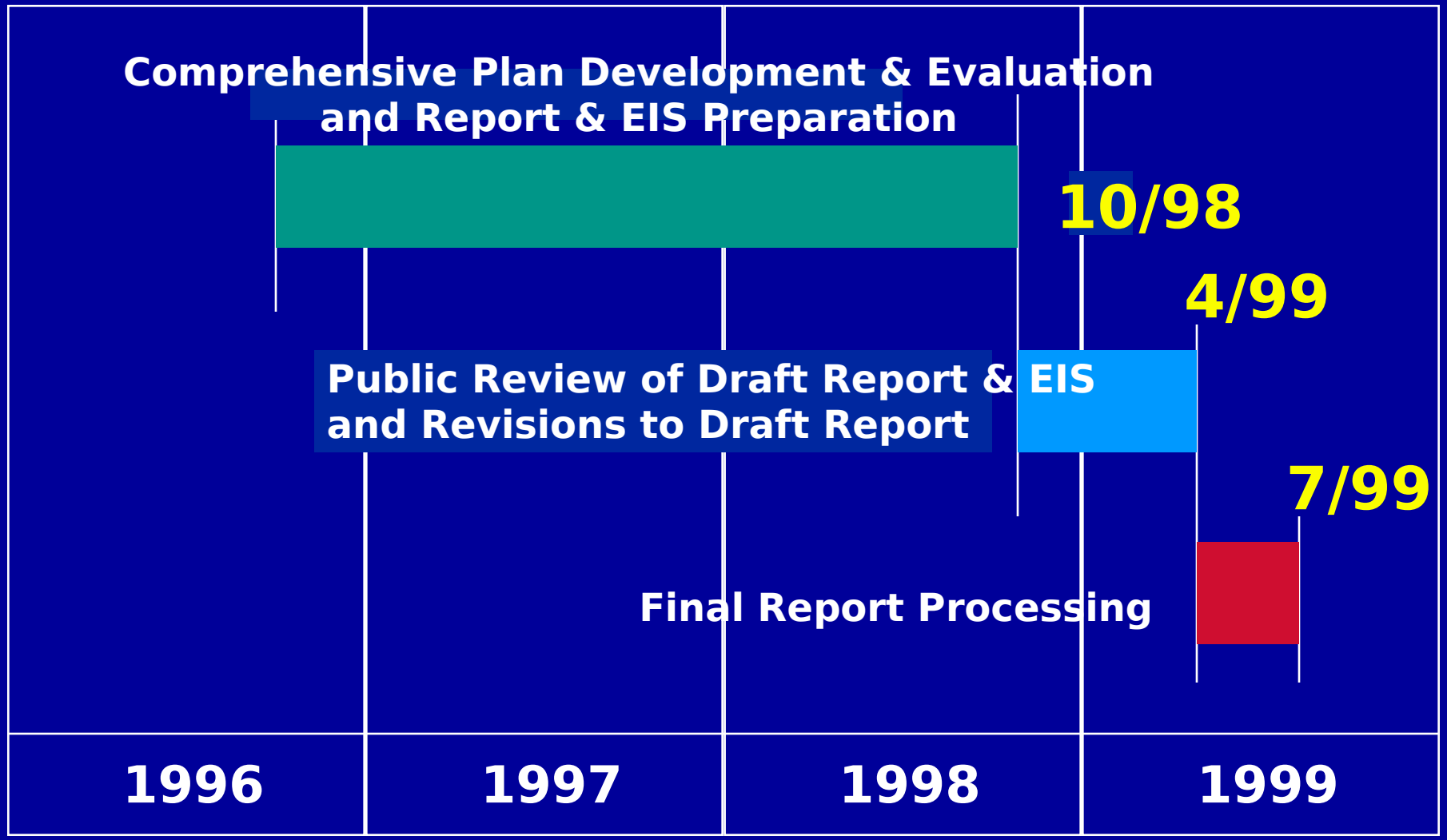
" The Secretary shall develop, as expeditiously as practicable, a proposed comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem. The comprehensive plan shall provide for the protection of water quality in, and the reduction of the loss of fresh water from, the Everglades. The comprehensive plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and Southern Florida Project."

WRDA '96 PROVISIONS

(SEC.528) Everglades and South Florida Ecosystem Restoration

- **Complete comprehensive plan with a report and programmatic EIS to Congress by July 1, 1999**
- **Establishes 50-50 cost-sharing for projects**
- **Credit for lands acquired by the sponsor**
- **Cost sharing for water quality features essential to Everglades restoration**

COMPREHENSIVE PLAN SCHEDULE



FINAL REPORT MILESTONES

• Final Report Submitted	April 1, 1999
• Division Engineer's Public Notice	April 7
• Initiate 30 Day NEPA / State and Agency Review	April 26
• Policy Level Group Review/Comments	May 20
• Complete 30 Day Review	May 24
• Chief of Engineers Report	June 17
• OMB Clearance Letter	June 30
• ASA(CW) Submits Report to Congress	July 1

NOT BUSINESS AS USUAL

- Complexity of problems
- Need for ecosystem perspective
- Conflicting agency responsibilities
- Intense public interest

STUDY TEAM PARTICIPANTS

- U.S. Army Corps of Engineers
- South Florida Water Management District
- US Fish and Wildlife Service
- Everglades National Park
- National Marine Fisheries Service
- U.S. Environmental Protection Agency
- Natural Resources Conservation Service
- Miccosukee and Seminole Tribes
- Florida Department of Agriculture and Consumer Services
- Florida Department of Environmental Protection
- Florida Game and Fresh Water Fish Commission
- Local Government Agencies

PUBLIC / STAKEHOLDER INVOLVEMENT

THE PROBLEM

- Too much/too little water for the Everglades/south Florida ecosystem
- Fragmentation of natural areas
- Population growth and increased demand
- 1.7 billion gallons of water a day lost to tide

GOALS & OBJECTIVES FOR THE RESTUDY

Goal: Enhance Ecologic Values

Objectives:

- Increase the total spatial extent of natural areas
- Improve habitat and functional quality
- Improve native plant and animal species abundance and diversity

Goal: Enhance Economic Values & Social Well Being

Objectives:

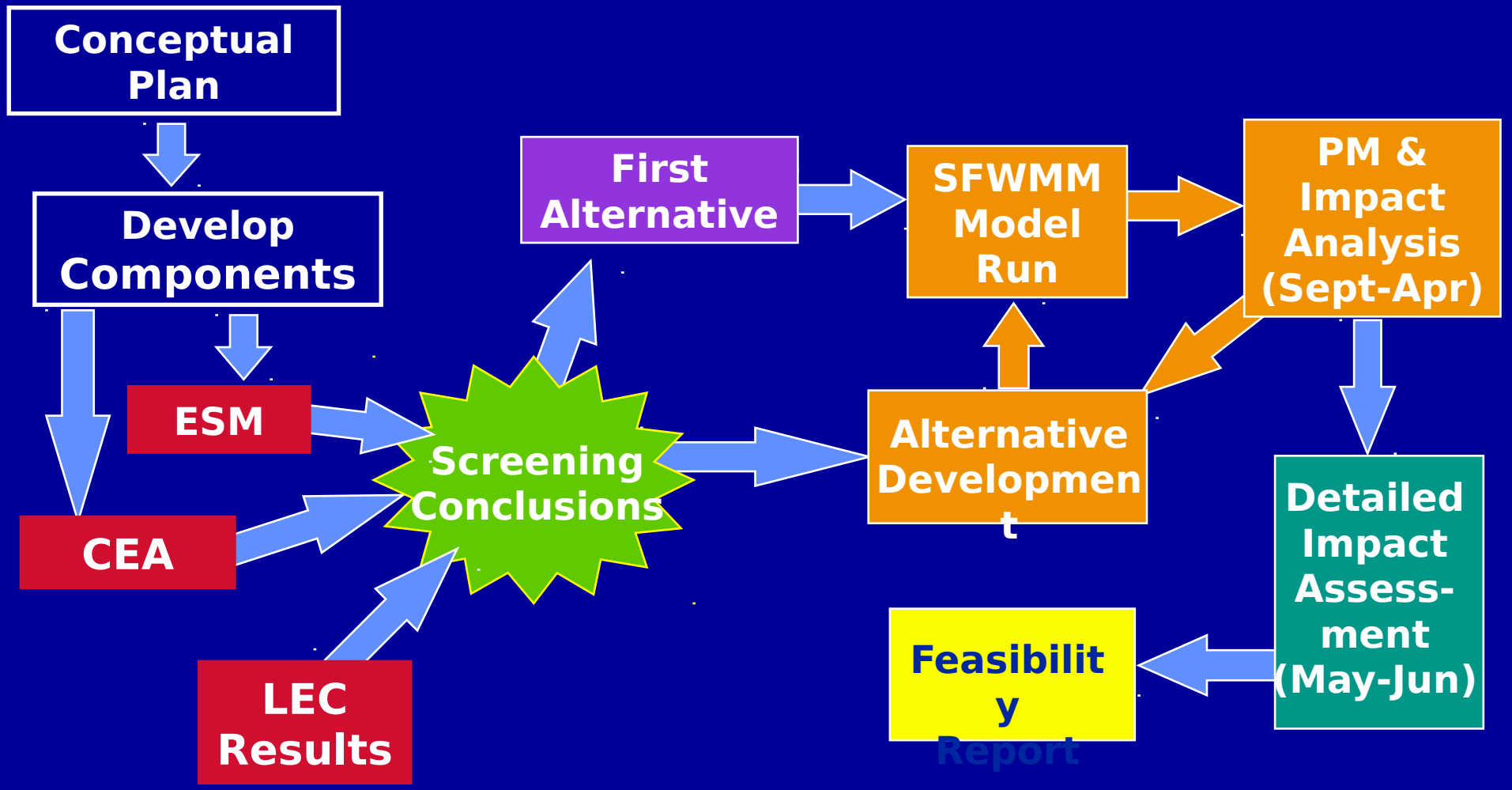
- Increase availability of fresh water (agricultural/municipal & industrial)
- Reduce flood damages (agricultural/urban)
- Provide recreational & navigation opportunities
- Protect cultural & archeological resources and values

THE COMPREHENSIVE PLAN....

- Defines the major project features for ecosys
  restoration, water supply, and other wate
  resources objectives

- Defines a process for implementing the plan

COMPREHENSIVE PLAN
FORMULATION & EVALUATION PROCESS



- **Components**

  - Conceptual project features intended to achieve a particular planning objective or set of planning objectives

- **Comprehensive Plan**

  - A combination of components

FOR COMPONENTS SCREENED -

Number of Possible Combinations =

6,720,660,150,711,000,000,000,000,000,0

or 6.72×10^{30}

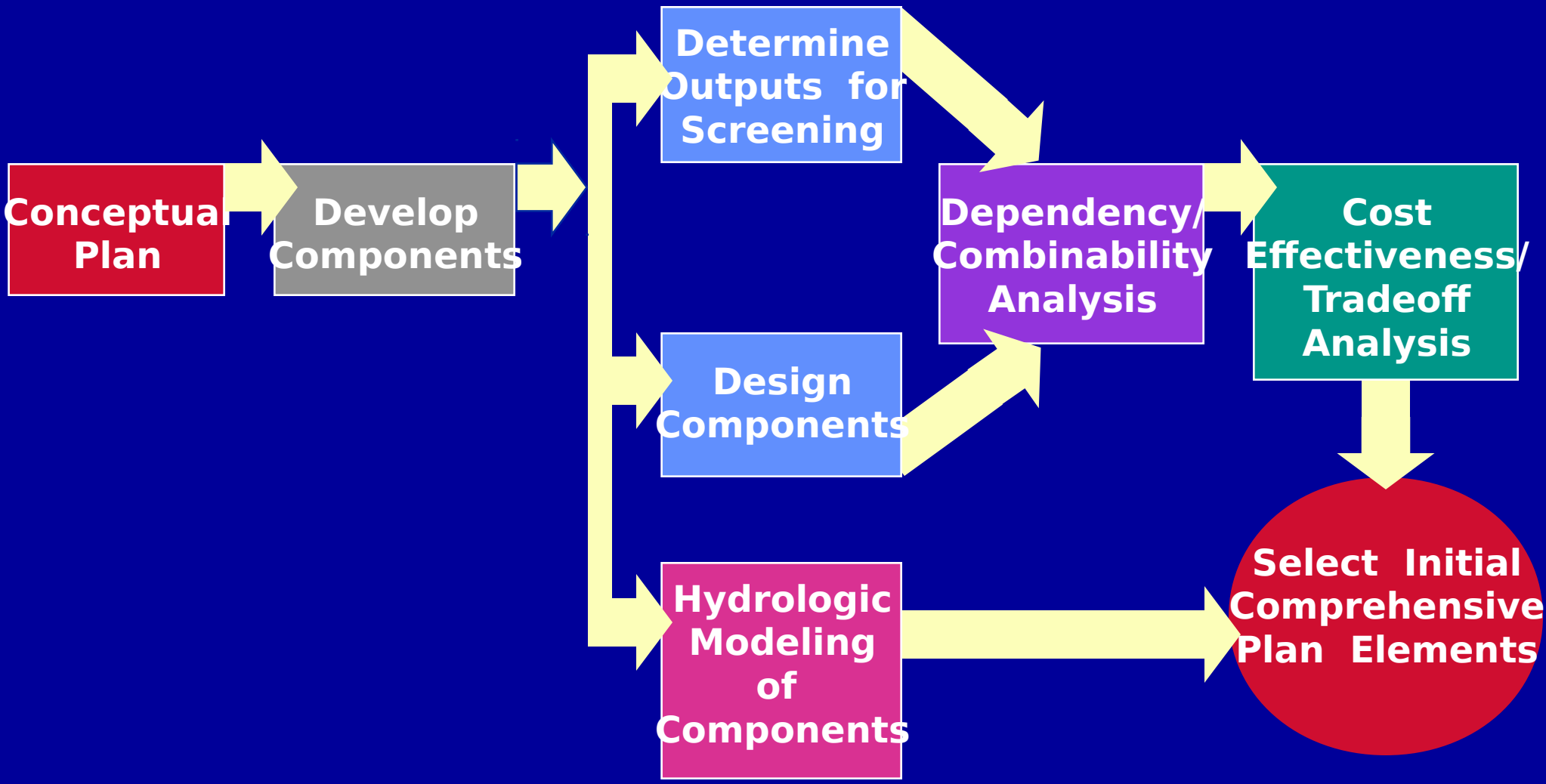
HOW BIG IS 6.72×10^{30} ?

U.S. National Debt $\$5.4 \times 10^{12}$

Distance to Nearest Star 2.46×10^{13} mi

Number of Stars in the Universe 1×10^{22}

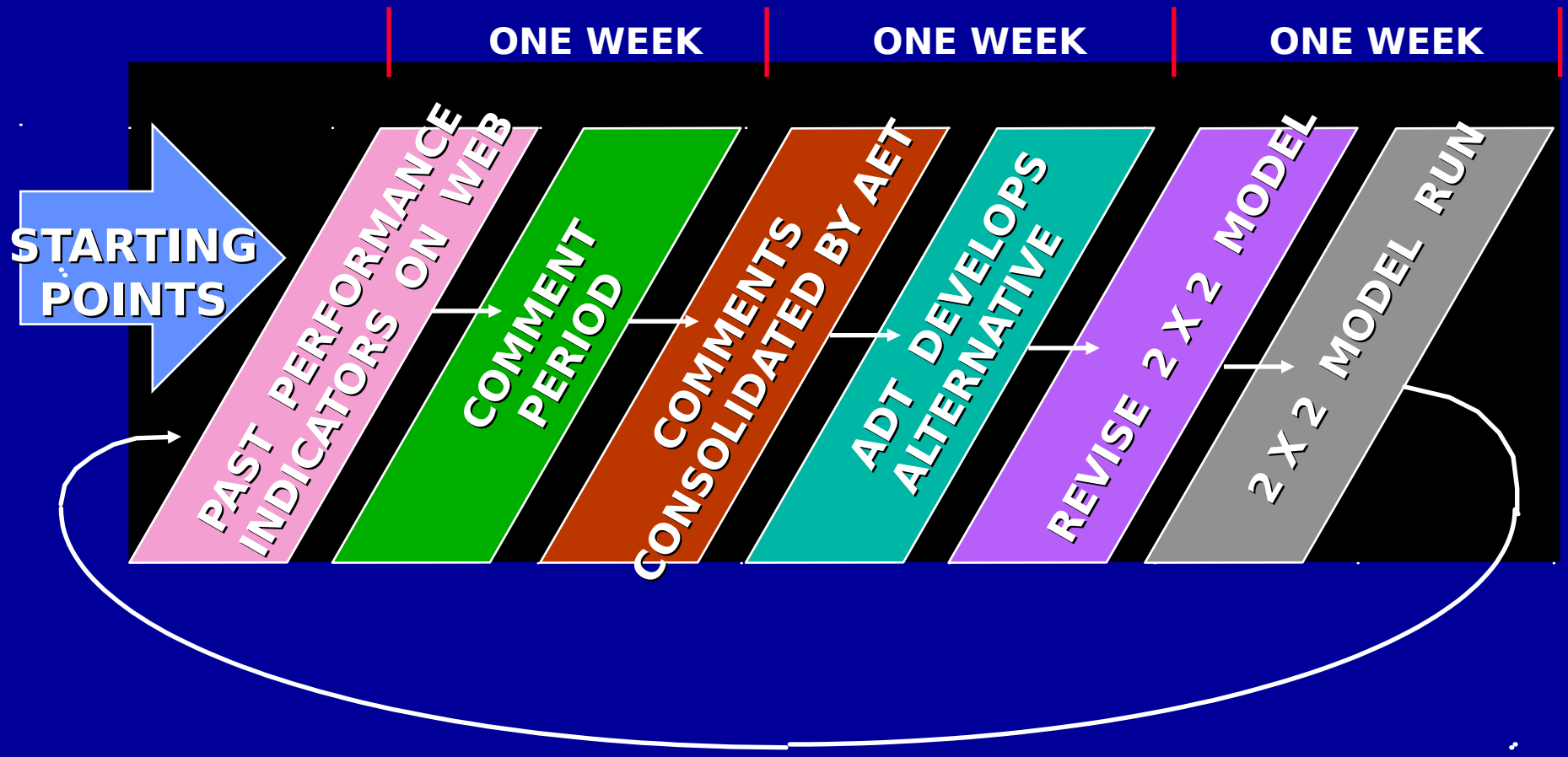
SCREENING PROCESS



SCREENING ANALYSIS

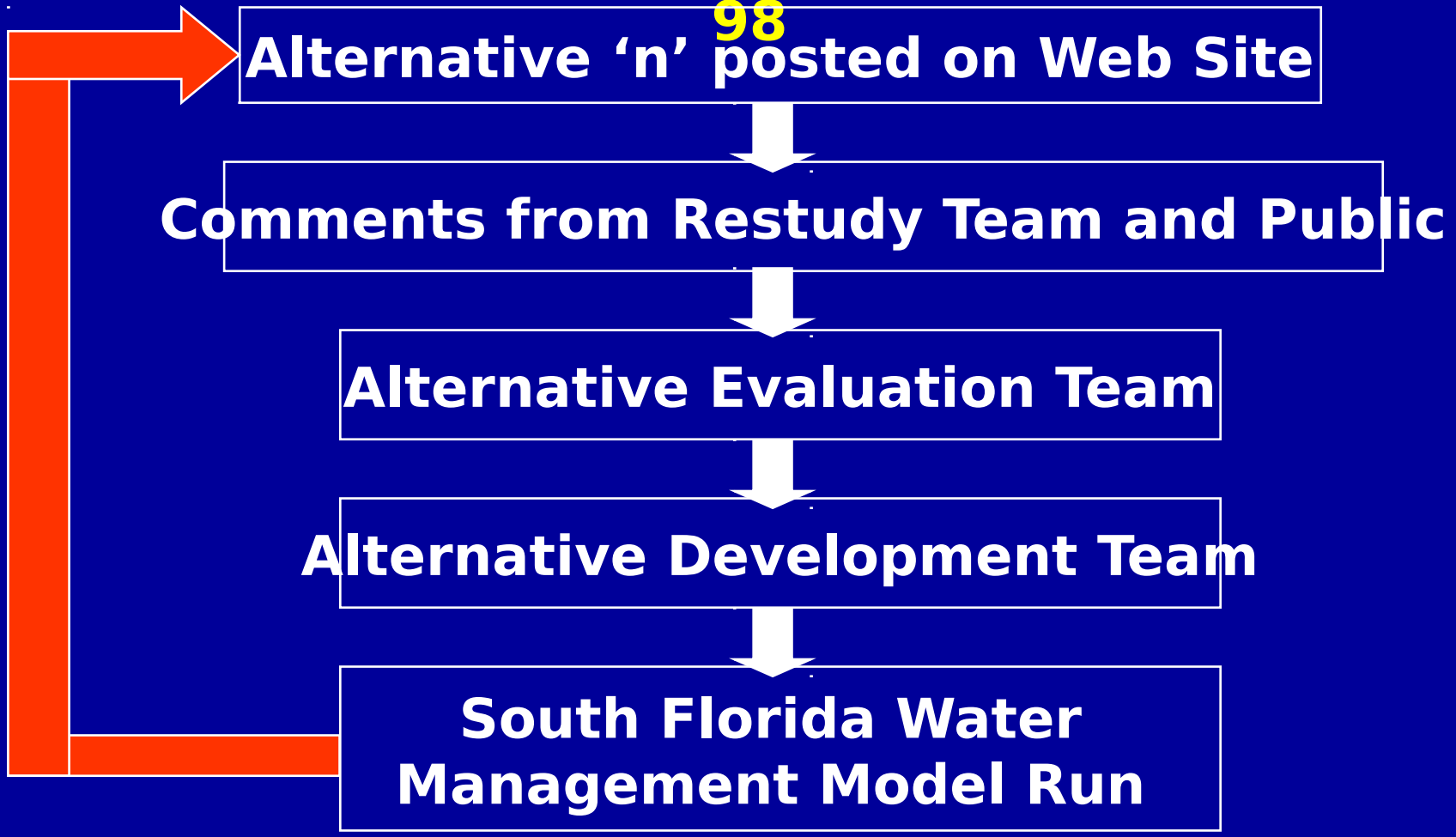
- Everglades Screening Model (ESM)
- Cost Effectiveness Analysis (CEA)
- Lower East Coast Regional Water Supply Planning process (LEC)
- Best Professional Judgment (BPJ)

HYDROLOGICAL ALTERNATIVE DEVELOPMENT PROCESS



COMPREHENSIVE PLAN FORMULATION PROCESS

September 97 – April 98


Alternative ‘n’ posted on Web Site
Comments from Restudy Team and Public
Alternative Evaluation Team
Alternative Development Team
South Florida Water Management Model Run

ALTERNATIVE PLAN THEMES

- Starting Point - Stop Seepage
- Alternative 1 - Storage
- Alternative 2 - More Storage
- Alternative 3 - Aquifer Storage and Recovery
- Alternative 4 - Decompartmentalization
- Alternative 5 - Improve Natural Area Function

SCENARIOS

Alternative 3

- **Decompartmentalization**
  - **WCA 3**
  - **WCA 2 and 3**
  - **WCA 1, 2, and 3**

Alternative 4

- **WCA 2A - 2B Decompartmentalization**
- **Remove Lake Okeechobee ASR**

Alternative 5

- **WCA 1, 2, and 3 Decompartmentalization**
  - **Using Lake Okeechobee**
  - **Using “Virtual” Lake**
- **Public Water Supply**
  - **Cap at 1995 Demand**
  - **Double 2050 Demand**
  - **Zero Demand**

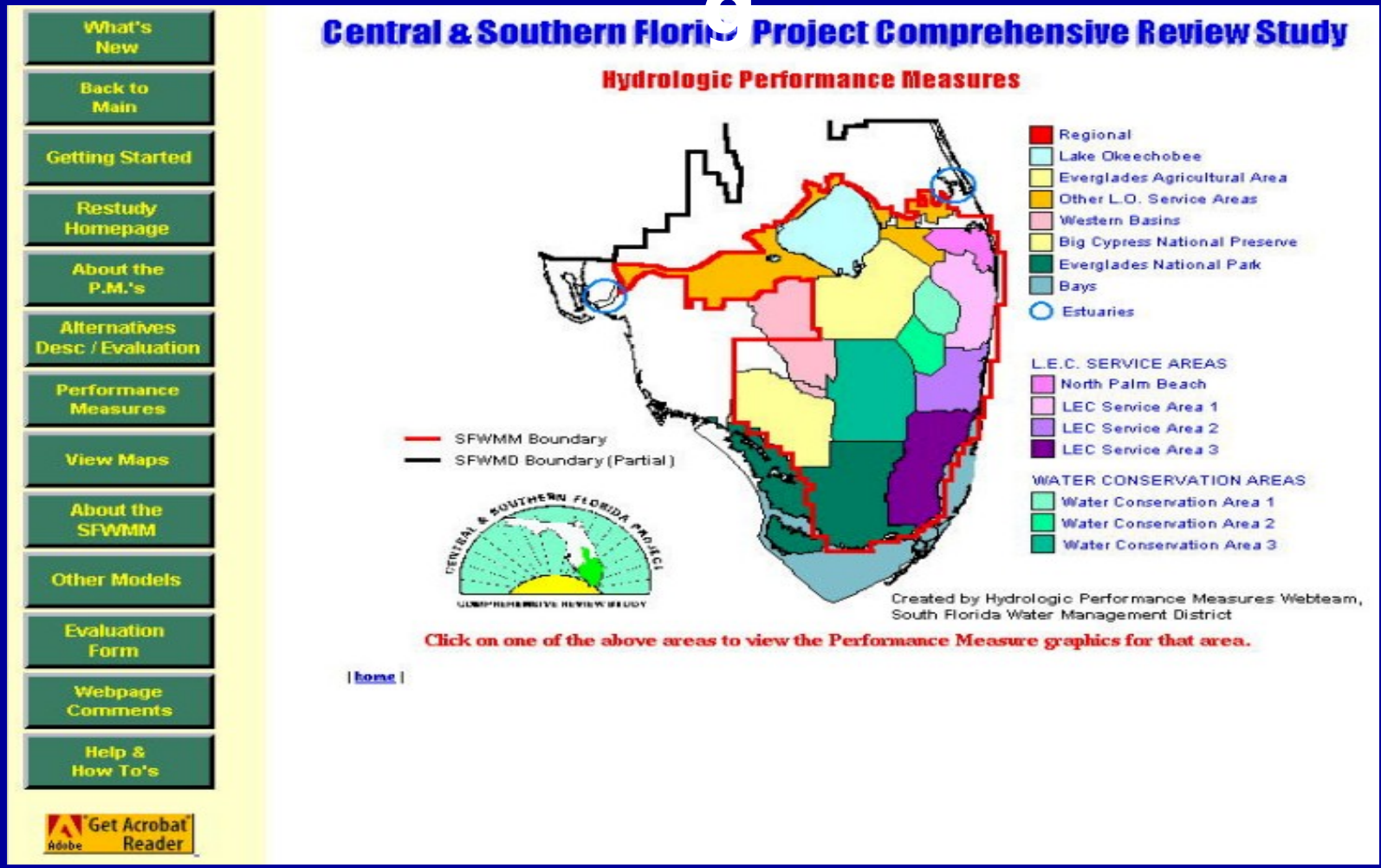
PLAN EVALUATION AND DEVELOPMENT TEAMS

- Alternative Evaluation Team (AET)
  - Interdisciplinary, multi-agency team (~50)
  - Evaluates performance of alternatives
  - Recommends improvements to plan
- Alternative Development Team (ADT)
  - Interdisciplinary, multi-agency team (~30)
  - Develops components to address performance objectives based on AET recommendations

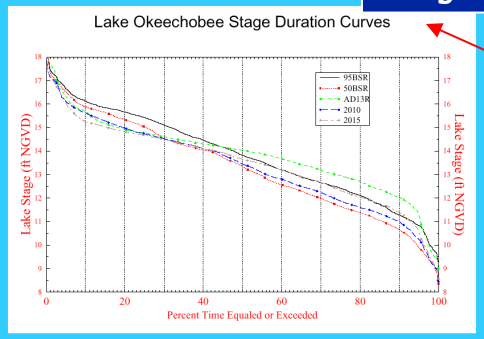
MAJOR RESTUDY MODELS

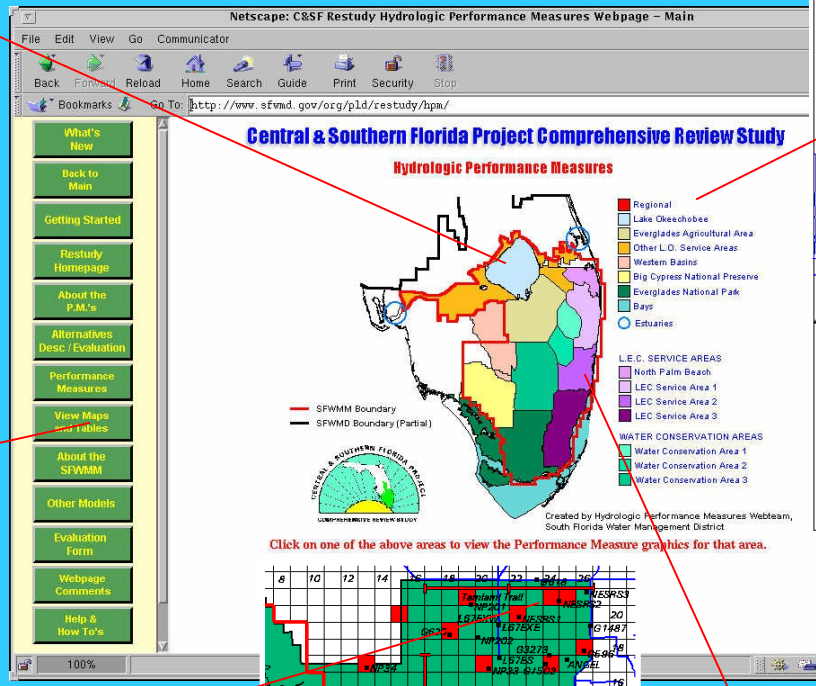
- South Florida Water Management Model (SFWMM)
  - Simulates hydrology and water management of region
  - 2 mile x 2 mile grid
  - Continuous daily simulation over 31 year record
- Natural System Model (NSM)
  - Simulates hydrology of pre-drainage Everglades
  - Based on SFWMM
- Across Tropic Level System Simulation (ATLSS)
  - Provides information on biological responses of several species and species groups
  - Used to evaluate effects on keystone species

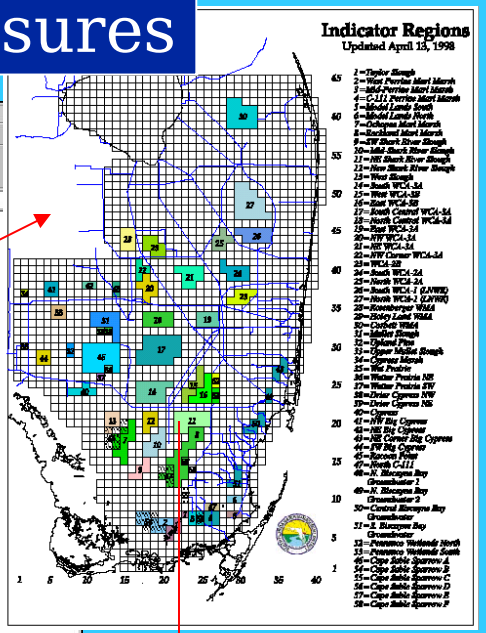
www.restudy.org

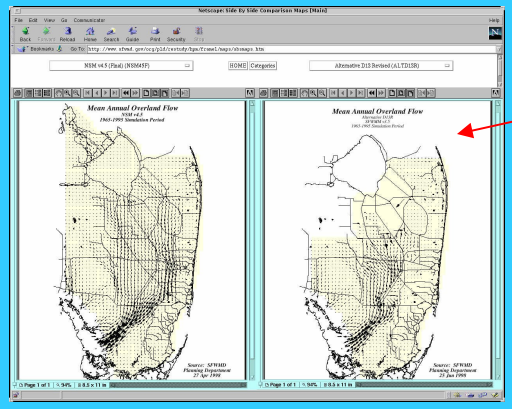


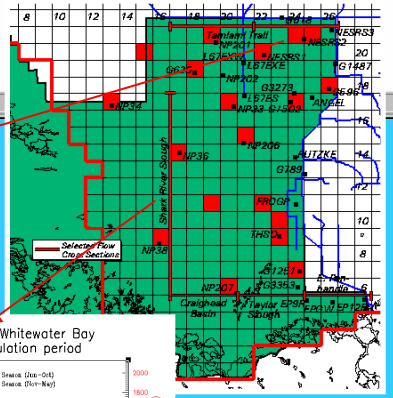
Hydrologic Performance Measures

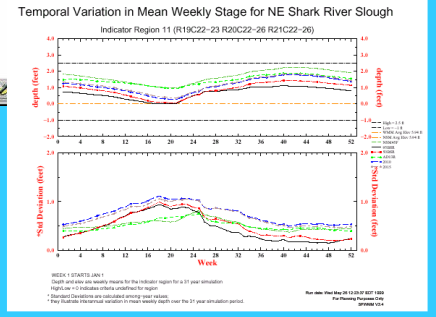


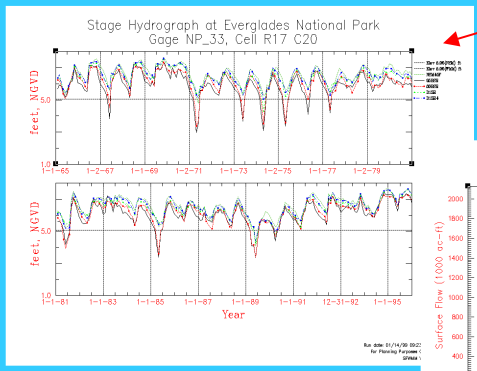


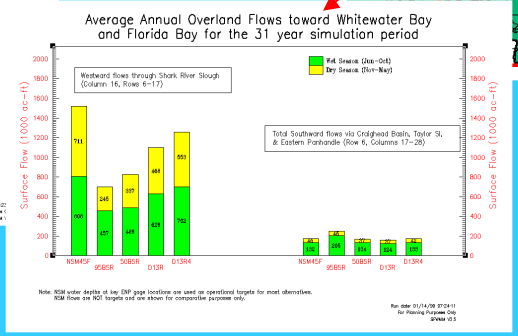


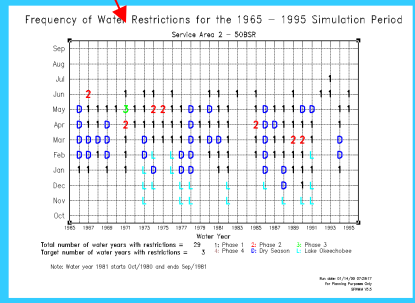


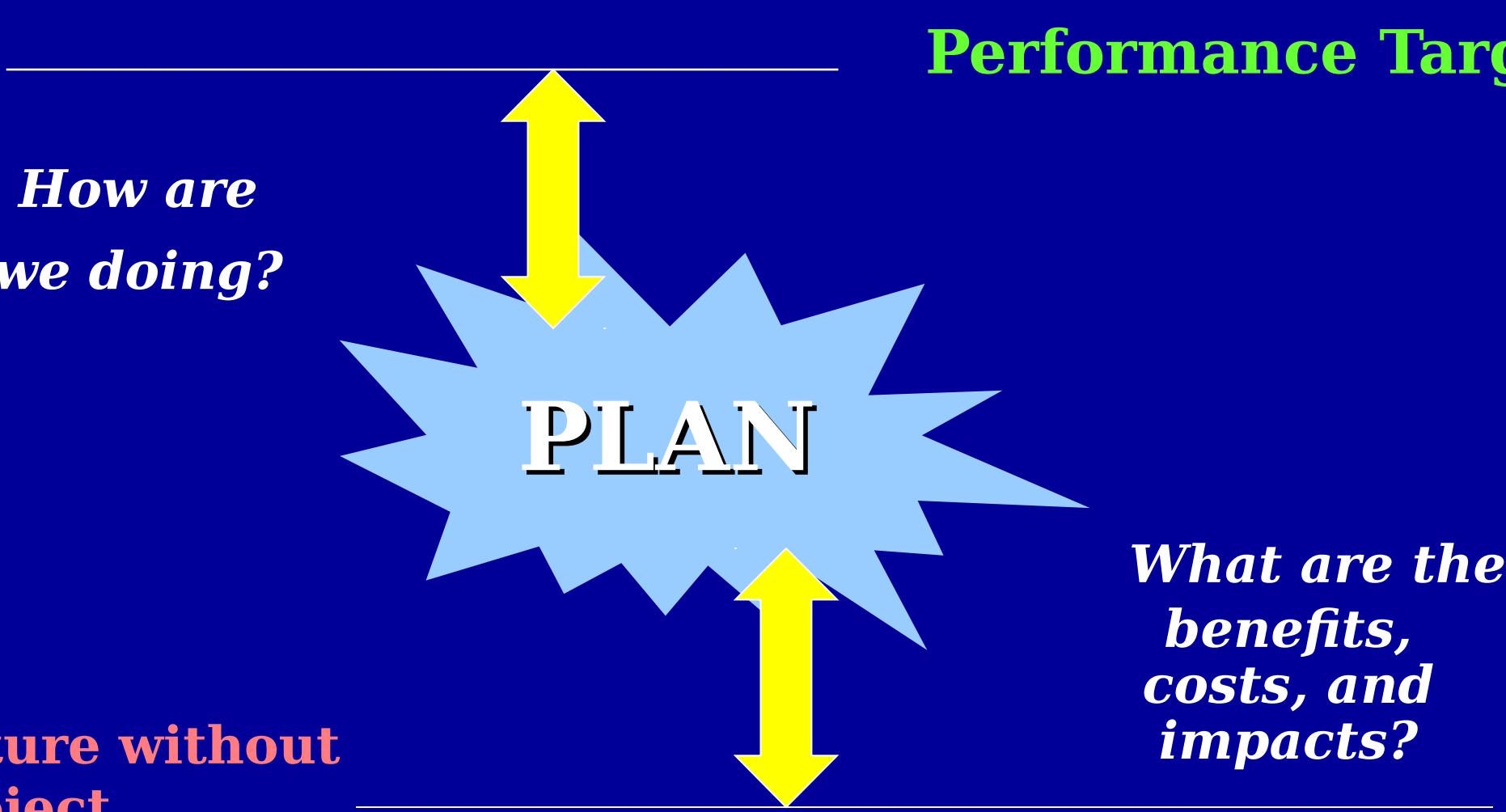



Temporal Variation in Mean Weekly Stage for NE Shark River Slough
Indicator Region 11 (R19C22–23 R20C22–26 R21C22–26)
depth (feet)
Std Deviation (feet)
Week

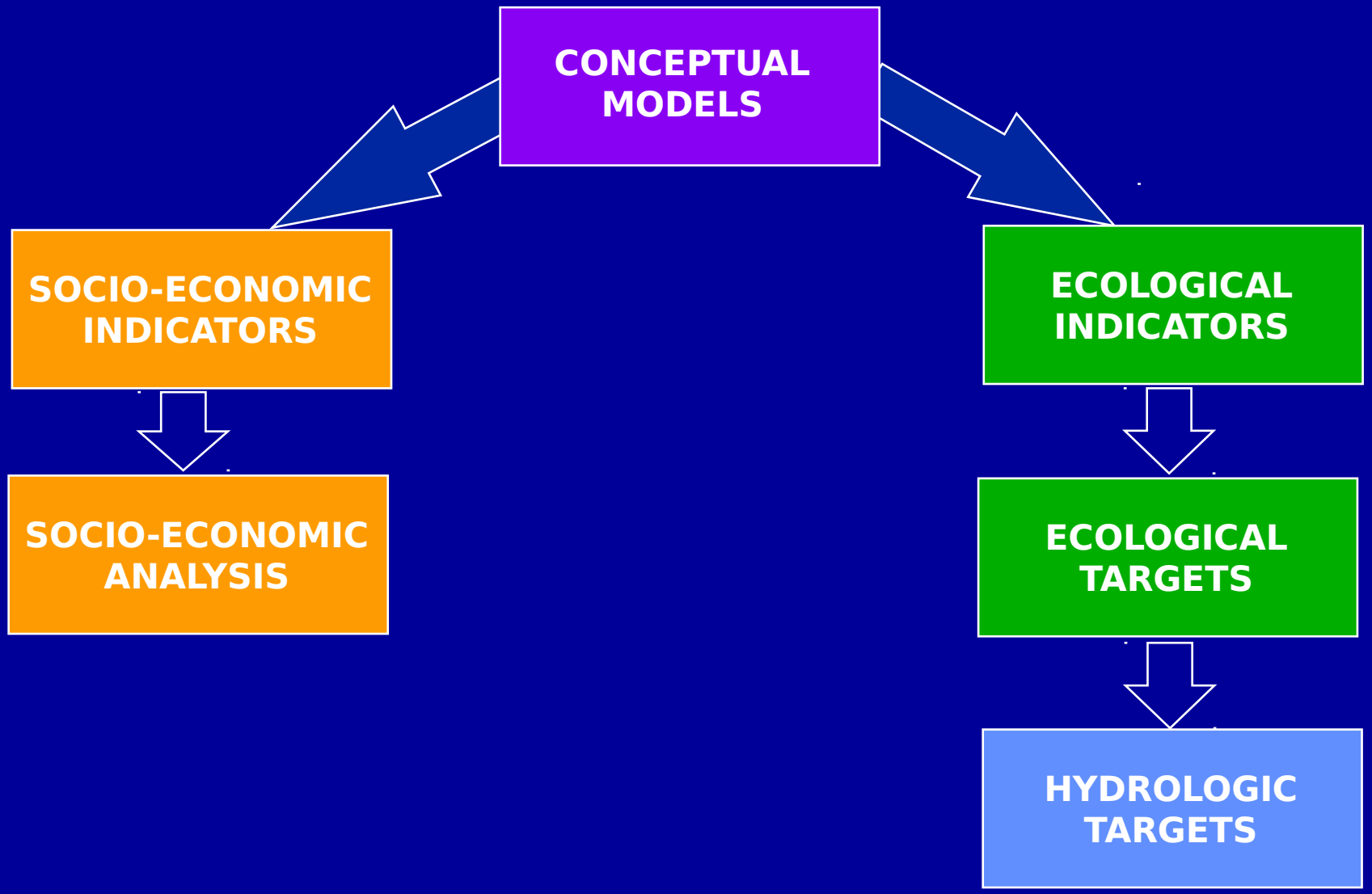



Average Annual Overland Flows toward Whitewater Bay and Florida Bay for the 31 year simulation period
Wet Season (Jun–Oct)
Dry Season (Nov–May)
Westward flows through Shark River Slough (Columns 16, Rows 6–17)
Total Southward flows via Craighead Basin, Taylor Sl. & Eastern Panhandle (Row 6, Columns 17–28)
Surface Flow (1000 ac-ft)
NSM45F
95BSR
50BSR
D13R
D13R4




Performance Target
How are we doing?
PLAN
What are the benefits, costs, and impacts?
Future without project condition

PERFORMANCE INDICATORS AND TARGETS



ALTERNATIVE EVALUATION TEAM
PLAN PERFORMANCE ASSESSMENT

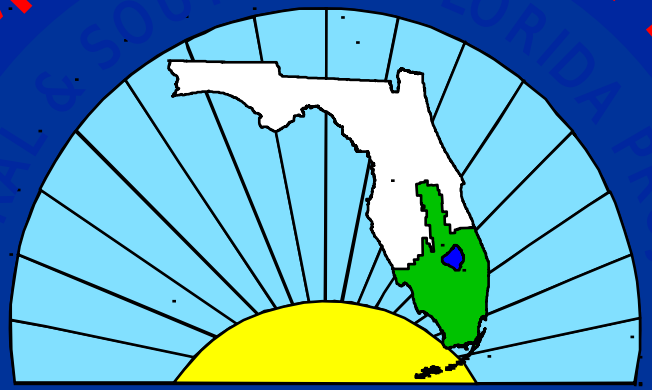
Subregion	2050	Recommended Plan
Lake Okeechobee	Y	G
St Lucie Estuary	R	G
Caloosahatchee Estuary	R	G
Lake Worth Lagoon	Y	Y
Loxahatchee NWR	Y	G
Holeyland & Rotenberger	Y	G
WCA 2A	R	Y
WCA 2B		R
Northwestern WCA 3A		G
Northeasten WCA 3A		Y
Eastern WCA 3A		Y
Central & Southern WCA 3A		G/Y
WCA 3B		Y
Shark River Slough	R	G
Rockland Marl Marsh	R	Y
Biscayne Bay	Y	G
Florida Bay	R	G
Pennsuco		G
C-111 Basin	R	G
So Big Cypress	Y	G
SE Big Cypress	Y	G
Connectivity	Y	G
Sheet Flow	R	G
Fragmentation	R	G
Lake O. Service Area	R	G
Urban Lower East Coast	R	G

“…restoring the Everglades is not rocket science or brain surgery.

It’s much more complicated than that.”

- Don Boesch

COMPREHENSIVE PLAN



CENTRAL & SOUTHERN FLORIDA PROJECT
COMPREHENSIVE REVIEW STUD

JULY 1, 1999

DID!!

YES, WE CAN!

RESTUDY TEAM STRUCTURE